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ON THE ANATOMY OF *AEROPE CAFFRA* Fer.

BY H. A. PILSBRY.

In the Proceedings of this Academy for 1889, p. 277, the writer gave an account of the anatomy of a South African land snail, *Helix knysnaënsis* of Pfeiffer, which was there placed provisionally in the genus *Aerope*, pending fuller knowledge of the organization of *A. caffra*, the only species heretofore referred to that genus. Through the continued kindness of Mr. John Ponsonby, of London, I am enabled now to describe a specimen of *A. caffra*, which was mailed living at London, but encountering some untoward accident *en route*, reached me with the shell broken and the softer tissues of the animal in such a condition that the parcel was regarded with suspicion and aversion by the Post-office official who gave it me. Upon dissecting the snail—a fine, large specimen—I found it in comparatively good condition, but somewhat softened by decomposition although I had placed it in alcohol as soon as received.

The foot is shaped like that of *A. knysnaënsis*, and measures about 42 mm. in length, 20 in greatest breadth. The sinus separating the sole from the head is quite deep. The sole is whitish; the upper surface of the foot and head is blackish. The dorsal grooves, usually prominent in *Agnatha*, are inconspicuous. There are, of course, no epipodial grooves nor caudal mucous pore.¹ The buccal mass is very large and long, measuring 35 mm. in length. The radula (pl. I, fig. A) is 40 mm. long, 4½ wide. The formula of teeth is about 16-1-16. The rhachidian tooth (pl. I, fig. C, r, and B) is narrow, lanceolate, its basal-plate narrow, emarginate, but not nearly so distinctly forked as in *A. knysnaënsis*. The laterals are large, set in very oblique rows, and increase rapidly in size from the inner to the fifth, which is very large. The basal-plates of the inner laterals are oblong, but those of the outer (fourth and fifth laterals) are nearly square. Outside of the fifth lateral tooth there are about a dozen

¹ Two notices of the animal of *A. caffra* have been published: a short note by Mörch, reprinted in the foot-note of my previous paper on *Aerope* (Proc. A. N. S. Phila., 1889, p. 177); and a description of the external appearance and habits of the animal by Mr. J. S. Gibbons (in the Journal of Conchology, III, p. 95, July, 1880). The species was collected at Port Natal and Port Elizabeth by Mr. Gibbons. There are short, thick, conico-triangular labial tentacles visible in the living animal, as in *Glandina*, etc. These are wholly retracted in alcoholic specimens.

very minute, slender teeth, almost obsolete. A complete half row of teeth is figured on the plate.

The characters of the radula prove, as I had anticipated, that this species and *A. knysnaënsis* are congeneric, forming a group exhibiting characters distinct from all other agnathous genera. Compared with *knysnaënsis*, the *A. caffra* differs in the greater specialization of the radula, seen in the reduction of the lateral teeth to five on each side, instead of twelve; and in the smaller outer laterals. I do not regard the minute teeth lying outside of the fifth lateral as "marginals" or uncini, but as degenerate lateral teeth; true uncini being absent in the *Agnatha*, which in this respect hold somewhat the same relation to the *Gnathophora* that *Rhachiglossa* or *Toxoglossa* bear toward *Tænioglossa*. In the characters of radula, *Aerope caffra* represents the highest specialization of agnathous snail yet made known. The characteristics of the *Agnatha*,—oblique rows of thorn-shaped teeth, becoming smaller toward the center and the outer edges of the radula—are here exaggerated. In no hitherto known genus are the functional lateral teeth so few, or the outer ones so nearly lost.¹ In no other genus is there so abrupt a break in the size of the lateral teeth. The tendency in *Agnatha* seems to be toward a type of radula analogous to that represented in Pectini-branches by the *Toxoglossa*.

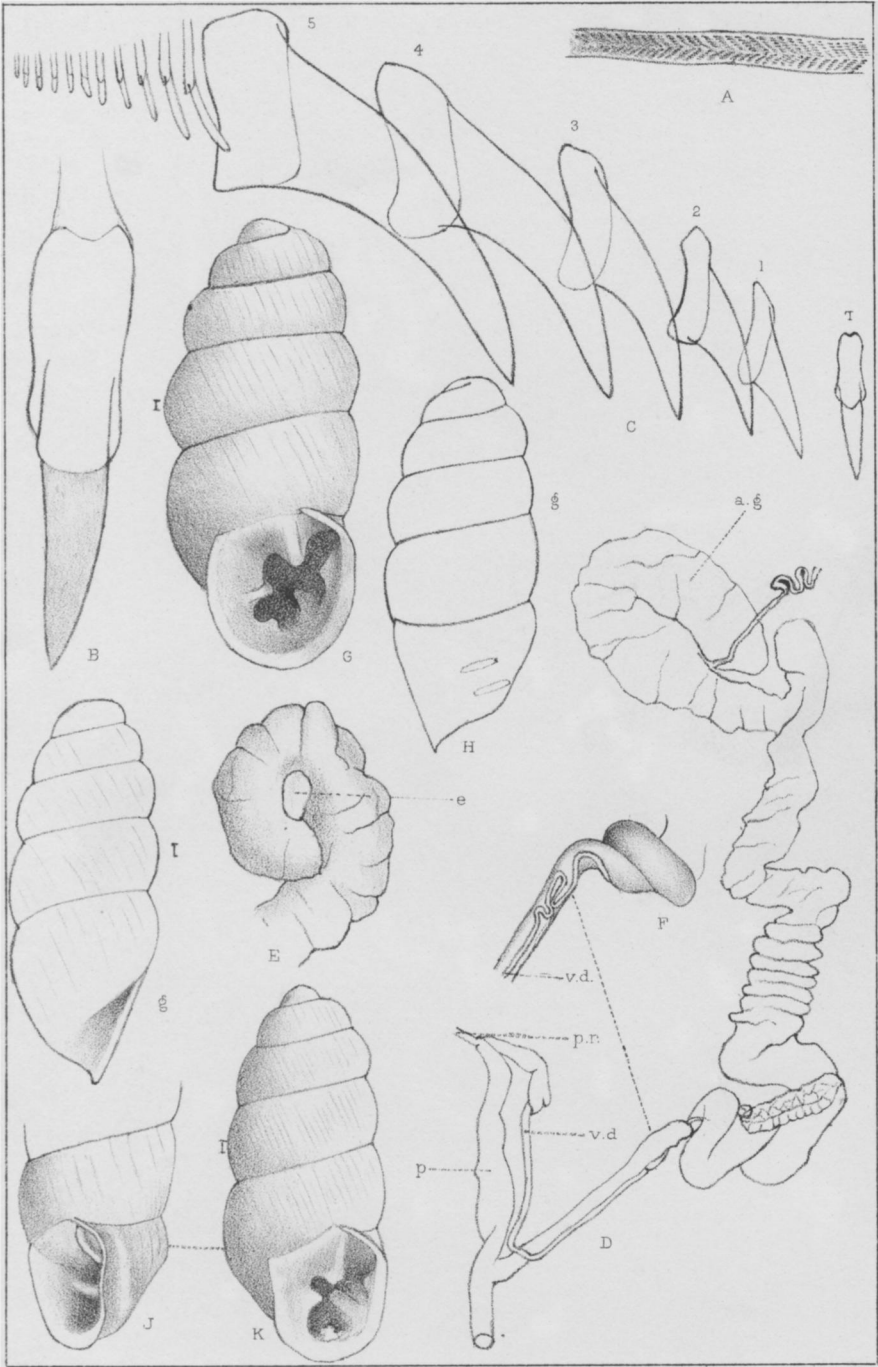
The genitalia have considerable resemblance to those of *A. knysnaënsis*. The vas deferens is curiously convoluted just below the twisted portion of the oviduct (see fig. F). The albumen gland (*a. g.*) is very large, but perhaps more swollen in my figures than in a freshly killed animal. I did not find any spermatheca, but think that this was owing to the soft, partly decayed condition of the viscera. I did not dissect out the ovo-testis. The orifice of the genitalia is very near the right tentacle.

The blind sac opening below the mouth, supposed by Dr. Leidy to be the seat of the olfactory sense, is very long, folding upon itself, terminating in the muscular tissues of the foot about one-third the length of the latter from the posterior extremity. When extended the length of the sac is about 100 mm.

¹ *Rhytida* may be considered more specialized in one respect:—the absence of a rhachidian tooth.

EXPLANATION OF PLATE I.

- Fig. A. Radula of *Aerope caffra*, natural size.
Fig. B. Enlarged view of rhachidian tooth.
Fig. C. Complete half-row of teeth.
Fig. D. Genitalia. *P.* penis; *p. r.* penis retractor muscle; *v. d.* vas deferens; *a. g.* albumen gland.
Fig. E. Albumen gland, opposite side; *e.* epididymis.
Fig. F. Lower portion of oviduct, showing the convoluted vas deferens.
Fig's G. H. I. J. K. *Pupa hordeacella* Pilsbry.



Pilsbry del.

PILSBRY ON AEROPE AND PUPA.